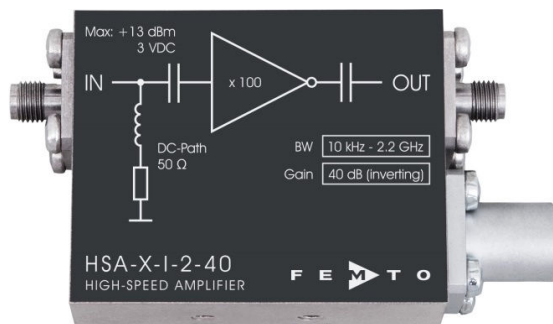


2.2 GHz High-Speed Amplifier



<p>Features</p>	<ul style="list-style-type: none"> • Bandwidth 10 kHz ... 2.2 GHz • Rise time 160 ps • Gain 40 dB (inverting) • Input VSWR 1.25 : 1 • Integrated bias circuit 																																							
<p>Applications</p>	<ul style="list-style-type: none"> • Preamplifier for ultra-fast detectors (microchannel-plates, photomultipliers, avalanche-photodiodes and PIN-photodiodes) • Oscilloscope and transient-recorder preamplifier • Time-resolved pulse and transient measurements 																																							
<p>Block Diagram</p>																																								
<p>Specifications</p>	<table border="0"> <tr> <td>Test conditions</td> <td colspan="2">$V_s = +15\text{ V}$, $T_A = 25^\circ\text{C}$, system impedance = $50\ \Omega$</td> </tr> <tr> <td>Gain</td> <td>Gain</td> <td>40 dB (x 100) (inverting)</td> </tr> <tr> <td></td> <td>Transimpedance gain</td> <td>5,000 V/A (40 dB x $50\ \Omega$)</td> </tr> <tr> <td></td> <td>Gain accuracy</td> <td>$\pm 1\text{ dB}$</td> </tr> <tr> <td>Frequency Response</td> <td>Lower cut-off frequency (-3 dB)</td> <td>10 kHz ($\pm 20\%$)</td> </tr> <tr> <td></td> <td>Upper cut-off frequency (-3 dB)</td> <td>2.2 GHz ($\pm 15\%$)</td> </tr> <tr> <td></td> <td>Rise/fall time (10% - 90%)</td> <td>160 ps</td> </tr> <tr> <td>Input</td> <td>DC input impedance</td> <td>$50\ \Omega$</td> </tr> <tr> <td></td> <td>RF input impedance</td> <td>$50\ \Omega$</td> </tr> <tr> <td></td> <td>$50\ \Omega$ noise figure</td> <td>2.8 dB (@ $f < 1\text{ GHz}$)</td> </tr> <tr> <td></td> <td>Equivalent input voltage noise</td> <td>$430\text{ pV}/\sqrt{\text{Hz}}$</td> </tr> <tr> <td></td> <td>Input VSWR</td> <td>1.25 : 1 (@ $f < 2.2\text{ GHz}$)</td> </tr> <tr> <td></td> <td>Input return loss</td> <td>19 dB (@ $f < 2.2\text{ GHz}$)</td> </tr> </table>	Test conditions	$V_s = +15\text{ V}$, $T_A = 25^\circ\text{C}$, system impedance = $50\ \Omega$		Gain	Gain	40 dB (x 100) (inverting)		Transimpedance gain	5,000 V/A (40 dB x $50\ \Omega$)		Gain accuracy	$\pm 1\text{ dB}$	Frequency Response	Lower cut-off frequency (-3 dB)	10 kHz ($\pm 20\%$)		Upper cut-off frequency (-3 dB)	2.2 GHz ($\pm 15\%$)		Rise/fall time (10% - 90%)	160 ps	Input	DC input impedance	$50\ \Omega$		RF input impedance	$50\ \Omega$		$50\ \Omega$ noise figure	2.8 dB (@ $f < 1\text{ GHz}$)		Equivalent input voltage noise	$430\text{ pV}/\sqrt{\text{Hz}}$		Input VSWR	1.25 : 1 (@ $f < 2.2\text{ GHz}$)		Input return loss	19 dB (@ $f < 2.2\text{ GHz}$)
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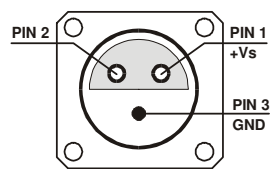
2.2 GHz High-Speed Amplifier

Specifications (continued)

Output	Output impedance 50 Ω Output VSWR 1.4 : 1 (@ f < 2.5 GHz) Output return loss 15.5 dB (@ f < 2.5 GHz) Output power P _{1dB} +12.5 dBm (@ f < 1 GHz) Output peak-to-peak voltage 2.0 V _{pp} (@ f < 500 MHz, for linear amplification) Output noise typ. 3.0 mV _{RMS} or 20 mV _{pp} * (measurement BW: 4 GHz)
	* The peak-to-peak output noise is derived from the RMS noise as follows: V _{pp} = V _{RMS} x 6.6 (99.9% of the time the output noise voltage will be within the specified peak-to-peak value.)
Power Supply	Supply voltage +15 V Supply current +145 mA
Case	Weight 100 g (0.23 lb) Material AlMg4.5Mn, nickel-plated
Temperature Range	Storage temperature -40 ... +100 °C Operating ambient temperature 0 ... +60 °C

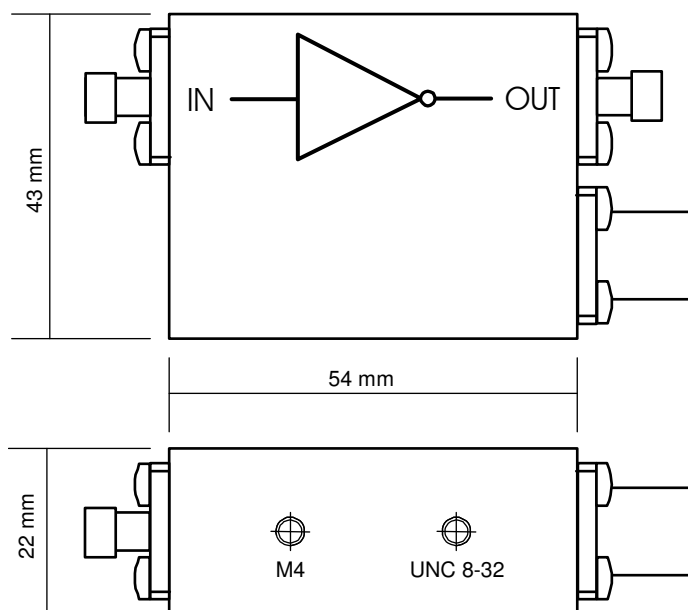
Absolute Maximum Ratings	Power supply voltage +18.5 V DC and LF input voltage ±3 V RF input power +13 dBm
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Connectors	Input SMA, jack (female) Output SMA, jack (female) Power supply Lemo® series 1S, 3-pin fixed socket (mating plug type: FFA.1S.303.CLAC52) Pin 1: +15 V Pin 2: NC Pin 3: GND
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2.2 GHz High-Speed Amplifier

Dimensions



DZ-HSA-X-I

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